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SEARCH REQUEST FORM

Requester's Full Name: LALITHA NAGUBANDI Examiner #: 82043 Date: 03/21/06
Art Unit: 1621 Phone Number: 2-7996 Serial Number: 10/539,785
Location (Bldg/Room#): REM/5D20 (Mailbox #): REM/C18 Results Format Preferred (circle) PAPER DISK

To ensure an efficient and quality search, please attach a copy of the cover sheet, claims, and abstract or fill out the following: 119

Title of Invention: Process for producing 1-Acetoxy-3-Substituted phenyl propene compound
Inventors (please provide full names): Masashi Shirai, Yoshihiro Yoshida, Shinichiro Sadaike

Earliest Priority Date: December 18th 2003

Search Topic:

Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc., if known.

For Sequence Searches Only Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.

Please search for-

- ① a process producing 1-acetoxy-3(Substituted phenyl) propene Compound represented by str I in claim 1
- ② Compound search for str VI
- ③ Compound search for str X & XI
- ④ Pl. Concentrate on claims 5-10; for process search.

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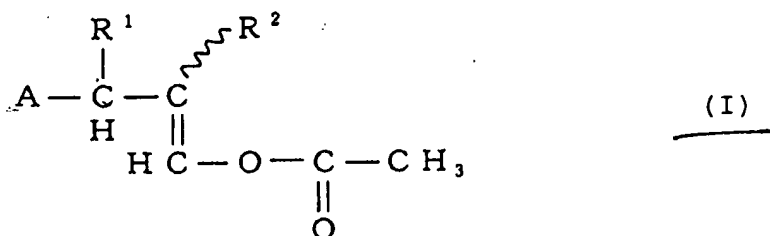
____ Commercial _____ Oligomer _____ Score/Length

____ Interference _____ SPDI _____ Encode/Transl

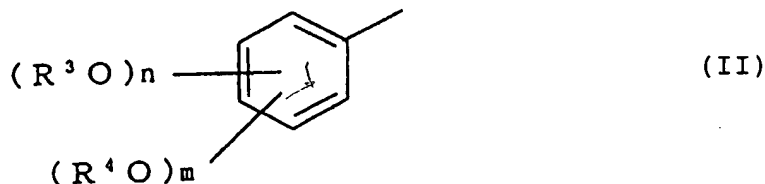
____ Other (specify)

CLAIMS

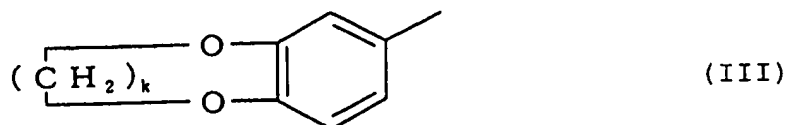
1. A process for producing a 1-acetoxy-3-(substituted phenyl)propene compound represented by the general formula (I):



in which formula (I), R^1 and R^2 , respectively and independently from each other, represent a member selected from the groups consisting of a hydrogen atom and alkyl groups having 1 to 10 carbon atoms, R^1 and R^2 may form, together with carbon atoms located in the 2- and 3-positions of the propene group, a cyclic group; and A represents a member selected from a group of substituted phenyl groups represented by the formulae (II) and (III):



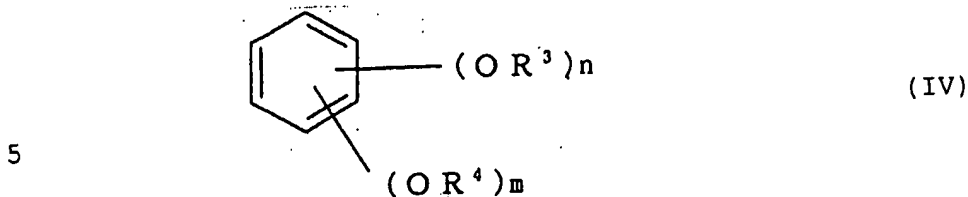
and



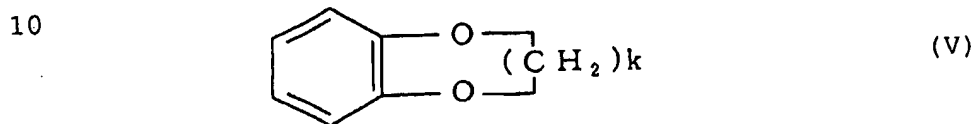
wherein R^3 and R^4 , respectively and independently from each other, represent an alkyl group having 1 to 4 carbon atoms, m represents an integer of 0 or 1 to 4, n represents an integer of 1 or 5 and k represents an integer of 1 or 2,

comprising reacting a benzene compound selected from

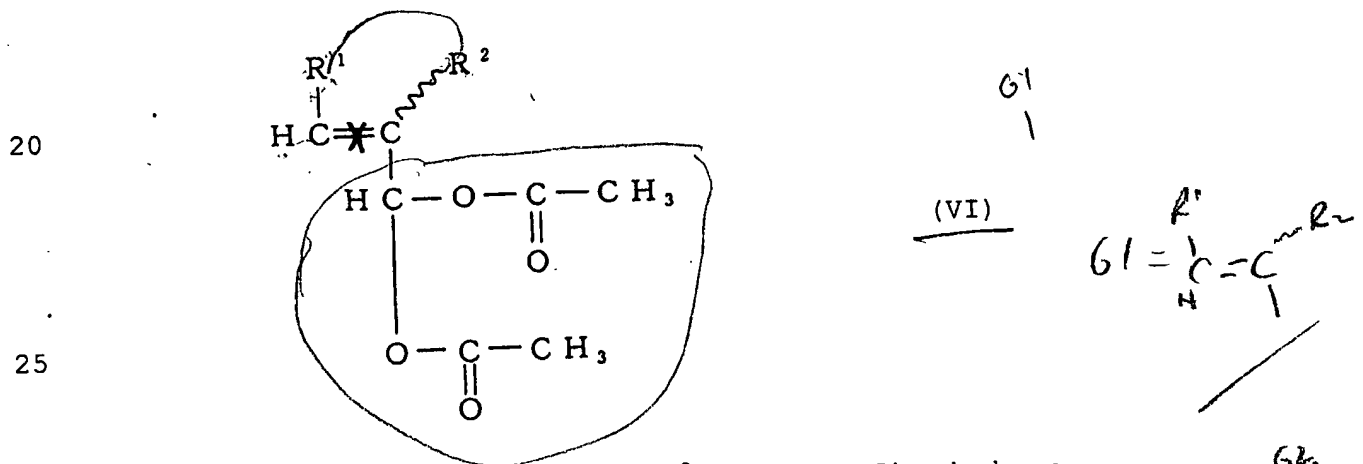
those represented by the general formulae (IV) and (V):



and



15 in which formula (IV) and (V), R^3 and R^4 and n , m and k are as defined above, with a 2-alkenylidene diacetate compound represented by the general formula (VI):



30 in which formula (VI), R^1 and R^2 are as defined above, in the presence of a catalyst comprising at least one compound selected from the group consisting of (a) halogenated boron compounds, (b) triflate compounds of Group 11 elements of the Periodic Table, (c) halogenated compounds of Group 12 elements of the Periodic Table, and (d) triflate compounds and

35 halogenated compounds of tin and lanthanoid elements of atomic numbers 58 and 66 to 71.

2. The process for producing a 1-acetoxy-3-

(substituted phenyl)propene compound as claimed in claim 1, wherein the benzene compounds represented by the formula (IV) is selected from the group consisting of anisole, veratrol, hydroquinone dimethylether, pyrogallol trimethylether and hydroxyhydroquinone trimethylether.

3. The process for producing a 1-acetoxy-3-(substituted phenyl)propene compound as claimed in claim 1, wherein the benzene compounds represented by the formula (V) is selected from the group consisting of 1,2-methylenedioxybenzene and 1,2-ethylenedioxybenzene.

4. The process for producing a 1-acetoxy-3-(substituted phenyl)propene compound as claimed in claim 1, wherein the alkenylidene diacetate is selected from the group consisting of 3,3-diacetoxy-2-methylpropene, 3,3-diacetoxy propene, 3,3-diacetoxy-1-methylpropene, 3,3-diacetoxy-2-ethyl propene, 3,3-diacetoxy-1-ethylpropene, and 3,3-diacetoxy-1-ethyl-2-methylpropene.

5. The process for producing a 1-acetoxy-3-(substituted phenyl)propene compound as claimed in claim 1, wherein the reaction is carried out in a molar ratio of the benzene compound to the alkenylidene diacetate compound of 1:1 to 50:1.

6. The process for producing a 1-acetoxy-3-(substituted phenyl)propene compound as claimed in claim 1, wherein the catalyst is present in an amount of 0.005 to 1 mole per mole of the alkenylidene diacetate compound.

7. The process for producing a 1-acetoxy-3-(substituted phenyl)propene compound as claimed in claim 1, wherein the halogenated boron compounds (a) usable for the catalyst are selected from boron fluorides, boron trifluoride-diethylether complexes, borontrifluoride-tetrahydrofuran complexes, boron trifluoride-acetic acid complex salt, boron trifluoride dihydrate, and boron trifluoride-n-buthylether complexes.

8. The process for producing a 1-acetoxy-3-

(substituted phenyl)propene compound as claimed in claim 1, wherein the triflate compounds (b) of Group 11 elements of the Periodic Table usable for the catalyst are selected from the group consisting of copper triflate and silver triflate.

5 9. The process for producing a 1-acetoxy-3-(substituted phenyl)propene compound as claimed in claim 1, wherein the halogenated compounds (c) of Group 12 elements usable for the catalyst are selected from the group consisting of zinc fluoride, zinc chloride, zinc bromide, zinc iodide, cadmium fluoride, cadmium chloride, cadmium bromide, cadmium iodide, hydrogen fluoride, mercury chloride, mercury bromide, and mercury iodide.


10 10. The process for producing a 1-acetoxy-3-(substituted phenyl)propene compound as claimed in claim 5, wherein the triflate and halogenated compounds (d) of tin and lanthanoid elements of atomic numbers 58 and 66 to 71 are selected from the group consisting of triflates, fluorides, chloride, bromides, and iodide of tin, cerium, dysprosium, holmium, erbium, thulium, ytterbium and lutetium.

15 11. The process for producing a 1-acetoxy-3-(substituted phenyl)propene compound as claimed in claim 1, wherein the reaction is carried out in an atmosphere consisting of a nonreactive gas to the above-mentioned compounds of the formulae (IV), (V) and (VI), the above-mentioned catalyst and the resultant reaction products.

20 12. The process for producing a 1-acetoxy-3-(substituted phenyl)propene compound as claimed in claim 1, wherein the compounds of the formula (I) are selected from the compounds represented by the general formula (VII):

$$\begin{array}{c}
 \text{R}^1 \\
 | \\
 \text{B}-\text{C}-\text{C}-\text{R}^2 \\
 | \quad || \\
 \text{H} \quad \text{H} \\
 \quad \quad \text{C}-\text{O}-\text{C}-\text{CH}_3 \\
 \quad \quad || \\
 \quad \quad \text{O}
 \end{array}
 \quad (\text{VII})$$

In which formula (VII), R^1 , R^2 are as defined above, B represents a member selected from a group of substituted phenyl groups represented by the formulae (VIII) and (IX):

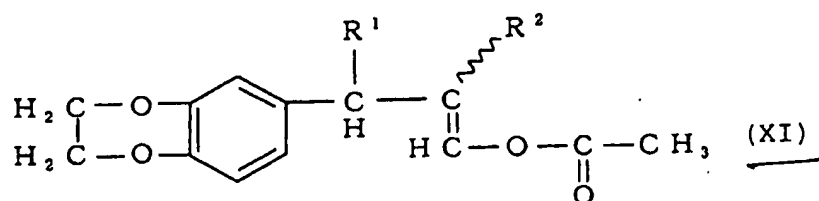

(VIII)

Cc1ccc(OCC(C)C)cc1 (IX)

13. The process for producing a 1-acetoxy-3-(substituted phenyl)propene compound as claimed in claim 1, wherein the compound of the formula (I) is selected from 1-acetoxy-3-(3,4-C1 to C2 alkylene dioxyphehyl)propenes represented by the formulae (X) and (XI):

$$\text{H}_2\text{C} \begin{array}{c} \diagup \\ \diagdown \end{array} \text{O} \begin{array}{c} \diagdown \\ \diagup \end{array} \text{C} \begin{array}{c} \diagup \\ \diagdown \end{array} \text{O} \begin{array}{c} \diagdown \\ \diagup \end{array} \text{CH}(\text{R}^1) - \text{CH} = \text{C}(\text{R}^2) - \text{O} - \text{C}(=\text{O}) - \text{CH}_3 \quad (\text{X})$$

and



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14. The process for producing a 1-acetoxy-3-(substituted phenyl)propene compound as claimed in claim 12, wherein in the formulae (X) and (XI), R^1 represents a hydrogen atom and R^2 represents a methyl group.

15. The process for producing a 1-acetoxy-3-(substituted phenyl)propene compound as claimed in claim 1, wherein the compound of the formula (I) is selected from the groups consisting of 1-acetoxy-2-methyl-3-(3,4-methylenedioxyphenyl)propene, 1-acetoxy-2-methyl-3-(3,4-ethylenedioxyphenyl)propene, 1-acetoxy-2-methyl-3-(4-methoxyphenyl)propene, 1-acetoxy-2-methyl-3-(2,5-dimethoxyphenyl)propene, and 1-acetoxy-2-methyl-3-(3,4-dimethoxyphenyl)propene.

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FAST SEARCH

| | | | | | |
|--|----------|----------|----|--|---------|
| US 20050143599 A1 | US-PGPUB | 20050630 | | Process for preparing monoesters | 560/261 |
| US 20020082446 A1 | US-PGPUB | 20020627 | | Process for esterification in a chromatographic reactor | |
| 560/263 | | | | | |
| US 20020062039 A1 | US-PGPUB | 20020523 | | Fluid bed vinyl acetate catalyst | 560/261 |
| US 20020028966 A1 | US-PGPUB | 20020307 | | Process for the preparation of fluid bed vinyl acetate catalyst | |
| 560/261 | | | | | |
| US 20020022741 A1 | US-PGPUB | 20020221 | | Metathesis syntheses of pheromones or their components | |
| 560/234 | | | | | |
| US 20010056201 A1 | US-PGPUB | 20011227 | | Process for the production of vinyl acetate | 560/245 |
| US 20010051690 A1 | US-PGPUB | 20011213 | | Polymers of 3-butene esters, their preparation and use | |
| 525/328.9 | | | | | |
| US 20010016666 A1 | US-PGPUB | 20010823 | | PROCESS FOR THE PRODUCTION OF ESTERS FROM | |
| ALCOHOLS USING ACETIC ACID AS ACETYLATED AGENT AND CLAYS AS CATALYSTS | | | | | 560/231 |
| US 6987200 B2 | USPAT | 20060117 | | Process for producing catalysts comprising nanosize metal | |
| particles on a porous support, in particular for the gas-phase oxidation of ethylene and acetic acid to give vinyl acetate | | | | | |
| 560/261 | | | | | |
| US 6982340 B2 | USPAT | 20060103 | 8 | Process for producing an ester | 554/142 |
| US RE38864 E | USPAT | 20051101 | 17 | Process for making n-butyl esters from butadiene | |
| 560/241 | | | | | |
| US 6900347 B2 | USPAT | 20050531 | 25 | Impurity inhibition in olefin metathesis reactions | |
| 560/261 | | | | | |
| US 6825149 B2 | USPAT | 20041130 | 12 | Highly selective shell impregnated catalyst of improved space time | |
| yield for production of vinyl acetate | | 502/330 | | | |
| US 6818792 B2 | USPAT | 20041116 | 6 | Preparation of polymerizable compounds | 560/218 |
| US 6803182 B1 | USPAT | 20041012 | 12 | Gallium complex composition, process for doping silver halide | |
| emulsion grains with gallium complex composition, and gallium-doped silver halide emulsion | | | | | 430/604 |
| US 6696596 B1 | USPAT | 20040224 | 7 | Catalyst and method for producing vinyl acetate | |
| 560/245 | | | | | |
| US 6677495 B1 | USPAT | 20040113 | 10 | Oligomer mixtures derived from cyclopentene; method for the | |
| production and use thereof | | 585/645 | | | |

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|---------------------------------------|---------------|----------|----|---|
| US 6605739 B1 | USPAT 560/245 | 20030812 | 10 | Method for producing vinyl acetate monomer from ethane or ethylene oxidation |
| US 6602476 B2 | USPAT | 20030805 | 9 | Apparatus and process for heat exchange with fluid beds |
| 422/146 | | | | |
| US 6540991 B2 | USPAT | 20030401 | 5 | Stabilized active materials |
| US 6534434 B2 | USPAT | 20030318 | 26 | Chiral imidazolidinone-based catalyst composition and reaction |
| system | 502/167 | | | |
| US 6506930 B1 | USPAT | 20030114 | 7 | Process for preparing alkyl (meth)acrylates |
| US 6472555 B2 | USPAT | 20021029 | 9 | Process for the production of esters from alcohols using acetic acid |
| as acetylating and clays as catalysts | | 560/231 | | |
| US 6420595 B1 | USPAT | 20020716 | 36 | Process control for vinyl acetate manufacture |
| 560/245 | | | | |
| US 6420308 B1 | USPAT | 20020716 | 8 | Highly selective shell impregnated catalyst of improved space time |
| yield for production of vinyl acetate | | 502/344 | | |
| US 6399813 B1 | USPAT | 20020604 | 14 | Process for the preparation of fluid bed vinyl acetate catalyst |
| 560/245 | | | | |
| US 6395676 B2 | USPAT | 20020528 | 15 | Process for the preparation of fluid bed vinyl acetate catalyst |
| 502/330 | | | | |
| US 6388042 B1 | USPAT | 20020514 | 7 | Dimethicone copolyol esters |
| US 6376706 B2 | USPAT | 20020423 | 5 | Catalyst and use thereof in the production of vinyl acetate |
| 560/241 | | | | |
| US 6348623 B1 | USPAT | 20020219 | 7 | Polymers of 3-butene esters, their preparation and use |
| 560/261 | | | | |
| US 6348622 B1 | USPAT | 20020219 | 15 | Vitamin a related compounds and process for producing the same |
| 560/260 | | | | |
| US 6322838 B1 | USPAT | 20011127 | 10 | Mint and/or fruit flavor compositions |
| US 6306943 B1 | USPAT | 20011023 | 9 | Zero volatile organic solvent compositions |
| US 6303537 B1 | USPAT | 20011016 | 6 | Vinyl acetate catalyst comprising metallic palladium and gold and prepared utilizing sonication |
| US 6278031 B1 | USPAT | 20010821 | | Catalyst and process for preparing 2-buten-1-ol compounds |
| 568/906 | | | | |

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|---------------|-------|----------|--|
| US 6278016 B1 | USPAT | 20010821 | Methods for conversion of isoprene to prenyl alcohol and related compounds |
| US 6274531 B1 | USPAT | 20010814 | Vinyl acetate catalyst comprising metallic palladium and gold, and cupric acetate |
| US 6258978 B1 | USPAT | 20010710 | Controlling product stream oxygen content in process for the production of vinyl acetate |
| US 6252106 B1 | USPAT | 20010626 | Method for stabilizing a sex pheromone compound |
| US 6228800 B1 | USPAT | 20010508 | Noble metal support |
| US 6225496 B1 | USPAT | 20010501 | Process for the production of vinyl acetate utilizing a recycle stream comprising acetic acid and water |
| US 6215019 B1 | USPAT | 20010410 | Synthesis of 5-decenyl acetate and other pheromone components |
| US 6191054 B1 | USPAT | 20010220 | Method for forming film and method for fabricating semiconductor device |
| US 6180821 B1 | USPAT | 20010130 | Integrated process for the production of vinyl acetate and/or acetic acid using a fluidized bed |
| US 6143921 A | USPAT | 20001107 | Method for producing vinyl acetate monomer from ethane or ethylene oxidation |
| US 6124270 A | USPAT | 20000926 | Use of a cationic amphiphathic compound as a transfection agent, vaccine additive or drug |
| US 6114573 A | USPAT | 20000905 | Catalyst, process for producing the catalyst and process for preparing vinyl acetate using the catalyst |
| US 6111130 A | USPAT | 20000829 | Process for the preparation of trifluoromethyl containing derivatives |
| US 6107515 A | USPAT | 20000822 | Process for preparing methacrylic or acrylic esters |
| US 6107514 A | USPAT | 20000822 | Vinyl acetate production using a catalyst comprising palladium and gold deposited on a copper containing carrier |
| US 6072079 A | USPAT | 20000606 | Continuous process for the production of diacetoxylbutene |

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|--------------|-------|----------|--|
| US 6048471 A | USPAT | 20000411 | Zero volatile organic compound compositions based upon organic solvents which are negligibly reactive with hydroxyl radical and do not contribute appreciably to the formation of ground based ozone |
| 252/364 | | | |
| US 6040474 A | USPAT | 20000321 | Integrated process for the production of vinyl acetate and/or acetic acid |
| 560/243 | | | |
| US 6034268 A | USPAT | 20000307 | 8-Ocimeryl esters and fragrances and flavors containing the same |
| 560/261 | | | |
| US 5891921 A | USPAT | 19990406 | Quaternary ammonium carboxylate and borate compositions and preparation thereof |
| US 5886214 A | USPAT | 19990323 | Process for the production of chiral unsaturated alcohols in high optical purity |
| 560/261 | | | |
| US 5872277 A | USPAT | 19990216 | Methods for preparing prenyl alcohol |
| US 5859287 A | USPAT | 19990112 | 560/261 Process for preparing vinyl acetate utilizing a catalyst comprising palladium, gold, and any of certain third metals |
| US 5821384 A | USPAT | 19981013 | 560/241 Process for generating vinyl carboxylate esters |
| 560/231 | | | |
| US 5783726 A | USPAT | 19980721 | Process for the preparation of vinyl acetate catalyst |
| 560/261 | | | |
| US 5744637 A | USPAT | 19980428 | Carboxylic acid accelerated formation of diesters |
| 560/238 | | | |
| US 5731456 A | USPAT | 19980324 | Preparation of vinyl acetate |
| US 5728376 A | USPAT | 19980317 | 560/238 Tetradecatrienyl and tetradecadienyl acetates and their use as sex attractants for tomato pests |
| US 5708167 A | USPAT | 19980113 | 424/84 Method for the preparation of an N-vinyl compound |
| 540/485 | | | |
| US 5665667 A | USPAT | 19970909 | Process for the preparation of vinyl acetate catalyst |
| 502/300 | | | |
| US 5607670 A | USPAT | 19970304 | Sex attractant for the cranberry fruitworm |
| US 5589548 A | USPAT | 19961231 | 424/84 Process for preparing difunctional telechelic linear non-crosslinked polyolefins |
| 525/247 | | | |

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|--|---------|----------|--|
| US 5536693 A | USPAT | 19960716 | Process for the preparation of vinyl acetate catalyst |
| 502/300 | | | |
| US 5502243 A | USPAT | 19960326 | Hydrocarbonylation of dimethyl ether |
| US 5466652 A | USPAT | 19951114 | 560/232 Process for the preparation of vinyl acetate catalyst |
| 502/330 | | | |
| US 5430179 A | USPAT | 19950704 | Homogeneous process for the ruthenium catalyzed addition of |
| carboxylic acids to alkynes | 560/261 | | |
| US 5380901 A | USPAT | 19950110 | Multifunctional acrylates and the synthesis thereof |
| 556/440 | | | |
| US 5296220 A | USPAT | 19940322 | Cockroach attractant |
| US 5294733 A | USPAT | 19940315 | 424/84 Organic compositions and their manufacture |
| US 5280048 A | USPAT | 19940118 | 560/152 .beta., gamma.-dihdropolyprenyl alcohol derivatives and |
| pharmaceutical composition containing a polyprenyl compound | | | |
| US 5254714 A | USPAT | 19931019 | 514/739 Hydrogenation of aromatic-substituted olefins using |
| organoruthenium catalyst | 560/8 | | |
| US 5243099 A | USPAT | 19930907 | Synthesis of alpha-substituted alkadienes |
| US 5236715 A | USPAT | 19930817 | Sex attractant for the mint root borer |
| US 5231221 A | USPAT | 19930727 | 424/484 Process for the preparation of acylals |
| US 5227517 A | USPAT | 19930713 | 560/263 Process for preparing ethylidene diacetate using iodide catalysts |
| 560/238 | | | |
| US 5202465 A | USPAT | 19930413 | Preparation of 2-methylenepropene-1,3-diol dicarboxylates |
| 560/261 | | | |
| US 5196571 A | USPAT | 19930323 | Preparation of unsaturated monoesters |
| US 5169981 A | USPAT | 19921208 | 8 Synthesis of alpha-substituted alkadienes |
| US 5169867 A | USPAT | 19921208 | 514/645 Hydroxylamine compounds |
| US 5166379 A | USPAT | 19921124 | 10 Synthesis of compounds with biological activity, and methods of |
| use | 554/224 | | |
| US 5155253 A | USPAT | 19921013 | 19 Transvinylation process for the preparation of thermally labile |
| vinyl compounds and for vinyl compounds prepared from thermally labile acids | | | 560/225 |
| US 5149843 A | USPAT | 19920922 | 16 Conjugated diene compounds |
| US 5118837 A | USPAT | 19920602 | 10 Selective hydrogenation of olefins |
| | | | 549/561 560/261 |

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|--------------|-------|----------|----|--|
| US 5095134 A | USPAT | 19920310 | 9 | Thermochromic diacetylene ethers containing ester or urethane groups |
| US 5089659 A | USPAT | 19920218 | 4 | Preparation of E7/Z9-alkadien-1-ols and their derivatives protected at the hydroxyl group |
| US 5081083 A | USPAT | 19920114 | 32 | Method of treating intermetallic alloy hydrogenation/oxidation catalysts for improved impurity poisoning resistance, regeneration and increased activity |
| US 5077046 A | USPAT | 19911231 | 28 | Polyprenyl composition or compounds and process for the production thereof |
| US 5073572 A | USPAT | 19911217 | 7 | Bioactive metabolites from cribrochalina vasculum |
| US 5072029 A | USPAT | 19911210 | 5 | Catalyzed process for reacting carboxylic acids with vinyl ethers |
| US 5026903 A | USPAT | 19910625 | 6 | Production of ethylidene diacetate from dimethyl acetal |
| US 4994087 A | USPAT | 19910219 | 9 | Compounds containing substituted phenylamino and pyridyl groups and hair dyeing preparations using them |
| US 4992609 A | USPAT | 19910212 | 11 | Phosphonium salts and processes for production of and uses for the same |
| US 4978778 A | USPAT | 19901218 | 12 | Process for producing vinyl acetate |
| US 4970334 A | USPAT | 19901113 | 9 | Process for preparing esters of unsaturated alcohols |
| US 4965376 A | USPAT | 19901023 | 4 | 3,9-dihydroxynonyne and its derivatives protected at the 9-OH function |
| US 4943397 A | USPAT | 19900724 | 6 | Metathesis of functional olefins |
| US 4943396 A | USPAT | 19900724 | 5 | Process for preparing linear alpha, omega difunctional molecules |
| US 4924026 A | USPAT | 19900508 | 31 | Triisobutylene alcohols and esters, uses thereof in perfumery and halogenated intermediates useful for preparing same |
| US 4912253 A | USPAT | 19900327 | 5 | Method for the preparation of an unsaturated alcohol or ester thereof |

| | | | | |
|--------------------------------|---------|----------|----|--|
| US 4910321 A | USPAT | 19900320 | 15 | Living catalysts, complexes and polymers therefrom |
| 549/213 | | | | |
| US 4902824 A | USPAT | 19900220 | 5 | Dispersant for vinyl acetate unit fouling |
| US 4886904 A | USPAT | 19891212 | | Polypropyl composition or compounds and process for the |
| production thereof | 560/249 | | | |
| US 4843178 A | USPAT | 19890627 | | Compositions possessing pheromone-like activity |
| 568/469.9 | | | | |
| US 4843170 A | USPAT | 19890627 | | Process for producing vinyl acetate |
| US 4837358 A | USPAT | 19890606 | | Preparation of 9-alkenyl ester compounds |
| US 4827004 A | USPAT | 19890502 | | Isoprene derivatives |
| US 4818442 A | USPAT | 19890404 | | Disproportionation process |
| US 4812509 A | USPAT | 19890314 | | Esters and polyesters from cyclopentadienylethanol and bis(2- |
| hydroxyethyl)dicyclopentadiene | | 524/484 | | |
| US 4806679 A | USPAT | 19890221 | | Isomerization of diacyloxybutenes |
| US 4801738 A | USPAT | 19890131 | | Preparation of .delta.-formylvalerates |
| US 4791222 A | USPAT | 19881213 | | Process for preparing dihydromyrcenol and dihydromyrcenyl |
| acetate | 560/237 | | | |
| US 4789750 A | USPAT | 19881206 | | 2-(trimethyl-trideceny)-tetramethylchroman intermediates for |
| vitamin E | 549/407 | | | |
| US 4780542 A | USPAT | 19881025 | | Process for the synthesis of esters and amides of carboxylic acids |
| 548/261 | | | | |
| US 4740627 A | USPAT | 19880426 | | Synthesis of E,Z-11-tetradecen-1-al |
| US 4734524 A | USPAT | 19880329 | | Synthetic pheromone 8-methyl-2-decanol propanoate |
| 560/265 | | | | |
| US 4691053 A | USPAT | 19870901 | | Process for producing organic compounds by utilizing oxygenic |
| complexes | 562/531 | | | |
| US 4665221 A | USPAT | 19870512 | | Preparation of terpenoid formates |
| US 4658071 A | USPAT | 19870414 | | Preparation of olefinically unsaturated compounds in particular |
| alkenols | 568/903 | | | |
| US 4658053 A | USPAT | 19870414 | 3 | Production of esters |
| | | | | 560/234 |

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|--|---------|----------|----|--|
| US 4650896 A | USPAT | 19870317 | 5 | Preparation of 2-alkyl-4,4-diacyloxybut-2-enals |
| 560/112 | | | | |
| US 4629586 A | USPAT | 19861216 | 23 | Hexynyl alkanates and organoleptic uses thereof |
| 510/107 | | | | |
| US 4618704 A | USPAT | 19861021 | 5 | Acyloxy-2-butenes and their preparation |
| US 4615838 A | USPAT | 19861007 | 6 | Unsaturated compounds and their preparation |
| 554/224 | | | | |
| US 4613457 A | USPAT | 19860923 | 3 | 2-methyl pentanoic acid esters and perfume compositions |
| containing them | 512/21 | | | |
| US 4599469 A | USPAT | 19860708 | 8 | Hydrogenation process |
| US 4571408 A | USPAT | 19860218 | 8 | alpha., beta.-Dihydropolyprenyl derivatives for treating hepatitis |
| 514/546 | | | | |
| US 4560792 A | USPAT | 19851224 | 10 | Disproportionation of functional olefins |
| US 4560776 A | USPAT | 19851224 | 45 | Prins reaction products of diisoamylene, derivatives thereof, |
| organoleptic uses thereof and processes for preparing same | | | | 549/356 |
| US 4539209 A | USPAT | 19850903 | 23 | Food flavoring use of hexynyl alkanates |
| US 4536188 A | USPAT | 19850820 | 3 | Alcohol compositions having luminous flames |
| US 4529132 A | USPAT | 19850716 | 4 | Process for preparing free-flowing ethylene homopolymers or |
| copolymer waxes | 241/1 | | | |
| US 4525298 A | USPAT | 19850625 | 20 | Aliphatic alcohols and esters and their use as perfuming |
| ingredients | 512/26 | | | |
| US 4521342 A | USPAT | 19850604 | 4 | Preparation of 2-alkyl-4,4-diacyloxybut-2-enals |
| 554/163 | | | | |
| US 4520213 A | USPAT | 19850528 | 6 | Method for solvent recovery in solvent separation of ethanol from |
| water | 568/913 | | | |
| US 4517377 A | USPAT | 19850514 | 6 | Process for producing vinyl acetate |
| US 4510319 A | USPAT | 19850409 | 12 | Functionalization of terminal trisubstituted alkenes and derivatives |
| thereof | 560/256 | | | |
| US 4501918 A | USPAT | 19850226 | 36 | Substituted methyl isopropyl oxocyclohexane derivatives, |
| organoleptic uses thereof and process for preparing same | | | | 560/231 |
| US 4501687 A | USPAT | 19850226 | 7 | Cyclopentanols |
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| US 4499297 A | USPAT | 19850212 | 4 | Process for the preparation of alkylated cyclopentenones |
| 560/231 | | | | |
| US 4495359 A | USPAT | 19850122 | 43 | Prins reaction products of diisoamylene, derivatives thereof, 549/356 |
| organoleptic uses thereof and processes for preparing same | | | | |
| US 4487959 A | USPAT | 19841211 | 5 | Vinyl acetate purification process 560/248 |
| US 4481217 A | USPAT | 19841106 | 8 | .alpha.,.beta.-Dihdropolyprenyl derivatives useful in treating hepatitis 514/549 |
| US 4469703 A | USPAT | 19840904 | 10 | Nitroalkanol derivatives and plant protecting agents containing the same 514/548 |
| US 4465853 A | USPAT | 19840814 | | Method for isomerizing diacetoxabutenes 560/262 |
| US 4461910 A | USPAT | 19840724 | | Process for the co-production of dicarboxylates and acids 560/263 |
| US 4450289 A | USPAT | 19840522 | | Butenyl acetate production 560/241 |
| US 4450288 A | USPAT | 19840522 | | Butenyl acetate production 560/241 |
| US 4450287 A | USPAT | 19840522 | | Butenyl acetate production 560/241 |
| US 4450286 A | USPAT | 19840522 | | Butenyl acetate production 560/241 |
| US 4440961 A | USPAT | 19840403 | | Branched chain olefinic alcohols, thiols, esters and ethers, organoleptic uses thereof, processes for preparing same and intermediates therefor 568/840 |
| US 4438286 A | USPAT | 19840320 | | Substituted esters and alcohols 568/840 |
| US 4431838 A | USPAT | 19840214 | | Extractive distillation of alcohol-ester mixtures and transesterification 560/234 |
| US 4429151 A | USPAT | 19840131 | | Prins reaction products of diisoamylene, derivatives thereof, organoleptic uses thereof and processes for preparing same 560/261 |
| US 4425265 A | USPAT | 19840110 | | Branched chain alkenyl methyl carbonates, uses thereof in augmenting or enhancing the aroma of perfume compositions, colognes and perfumed articles and formate intermediates useful in preparing same 512/26 |
| US 4415499 A | USPAT | 19831115 | | Process for the manufacture of palladium(II) catalyst and for the manufacture of alkenyl esters of carboxylic acids employing said catalyst 554/153 |
| US 4413639 A | USPAT | 19831108 | | Use of prins and derivatives thereof in augmenting or enhancing the aroma or taste of a smoking tobacco composition or smoking tobacco article component 131/276 |

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| US 4410719 A | USPAT | 19831018 | Preparation of 2-alkyl-4,4-diacyloxybut-2-enals |
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| US 4410718 A | USPAT | 19831018 | Process for forming esters (I) 560/103 |
| US 4406810 A | USPAT | 19830927 | Use of Prins reaction products of diisobutylene in augmenting or enhancing the aroma of detergents 510/101 |
| US 4399301 A | USPAT | 19830816 | Methylenically-substituted undecadienes 560/261 |
| US 4395370 A | USPAT | 19830726 | Branched chain alkenyl methyl carbonates, uses thereof in augmenting or enhancing the aroma of perfume compositions, colognes and perfumed articles and formate intermediates useful in preparing same 558/260 |
| US 4394285 A | USPAT | 19830719 | Prins reaction products of diisoamylenes, derivatives thereof, 510/101 |
| US 4387047 A | USPAT | 19830607 | Esters of 1,3-dimethyl-but-3-en-1-yl, their utilization as perfuming and flavoring ingredients and compositions containing same 426/534 |
| US 4381242 A | USPAT | 19830426 | Organoleptic use of Prins reaction products of diisoamylenes, derivatives thereof, organoleptic uses thereof and processes for preparing same 510/101 |
| US 4380636 A | USPAT | 19830419 | Process for forming esters (II) 546/326 |
| US 4379940 A | USPAT | 19830412 | Vinyl acetate purification process 560/248 |
| US 4375005 A | USPAT | 19830222 | Branched chain olefinic alcohols, thiols, esters and ethers, organoleptic uses thereof, processes for preparing same and intermediates thereof 568/878 |
| US 4374263 A | USPAT | 19830215 | Process for the production of esters in the presence of a heterogeneous esterification catalyst 560/204 |
| US 4370497 A | USPAT | 19830125 | Oxidation process using tellurium oxide catalysts 564/55 |
| US 4359412 A | USPAT | 19821116 | Organoleptic use of Prins reaction products of diisoamylenes derivatives 512/11 |
| US 4349415 A | USPAT | 19820914 | Process for separating organic liquid solutes from their solvent mixtures 203/14 |
| US 4347388 A | USPAT | 19820831 | 3,6-Dimethyl-3-hydroxy-oct-1-yne and -oct-1-enes, derivatives of these, and their use as scents, and in the preparation of 3,6-dimethyl-3-hydroxy-octane 568/840 |
| US 4338170 A | USPAT | 19820706 | Isomerization of .beta.-.gamma.-unsaturated alcohol or its ester 204/157.87 |

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| US 4331655 A | USPAT | 19820525 | Cosmetic compositions and processes containing ether and acyl |
| derivatives of 3,7,11-trimethyl-2,6,10-dodecatriene-1-ol | | 424/59 | |
| US 4317905 A | USPAT | 19820302 | Preparation of compounds containing two conjugated double |
| bonds cis-cis and cis-trans | | 549/415 | |
| US 4314071 A | USPAT | 19820202 | Method of preparing monoesters |
| US 4310709 A | USPAT | 19820112 | Manufacture of but-2-en-1-ol compounds by isomerizing the |
| corresponding but-3-en-1-ol compounds | | 568/687 | |
| US 4269780 A | USPAT | 19810526 | Olefin disproportionation |
| US 4267363 A | USPAT | 19810512 | Intermediates for a sex pheromone for yellow scale |
| 560/183 | | | |
| US 4260548 A | USPAT | 19810407 | Process for preparing polyethylene waxes |
| US 4243660 A | USPAT | 19810106 | Composite insect attractant for male cabbage moths and a process |
| for preparing its active agents | | 424/84 | |
| US 4236024 A | USPAT | 19801125 | Process for producing diacetoxybutene |
| US 4225728 A | USPAT | 19800930 | Catalytic process for the conversion of ethyl benzene to equimolar |
| amounts of vinyl acetate and phenol | | 560/261 | |
| US 4223012 A | USPAT | 19800916 | Method for control of San Jose scale |
| US 4192953 A | USPAT | 19800311 | Polyprenyl derivatives |
| US 4160865 A | USPAT | 19790710 | Asymmetric synthesis |
| US 4158096 A | USPAT | 19790612 | Intermediates for insect pheromone |
| US 4126585 A | USPAT | 19781121 | 2-Methyl-2-ethyl-hexanoate ester perfume compositions |
| 512/26 | | | |
| US 4125735 A | USPAT | 19781114 | Synthesis of esters of acetylenic alcohols |
| US 4118406 A | USPAT | 19781003 | Process for preparing cis-olefins |
| US 4116955 A | USPAT | 19780926 | Inclusion complex compound, process for its production, and |
| method for its use | | 534/838 | |
| US 4107333 A | USPAT | 19780815 | Skin care with a cosmetic composition containing oleyl acetate |
| 514/785 | | | |
| US 4104202 A | USPAT | 19780801 | Perfume compositions and process for preparing same |
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| US 4068082 A | USPAT | 19780110 | Process for preparing esters |
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| US 4066710 A | USPAT | 19780103 | 4 | Unsaturated alcohol | 568/875 | |
| US 4061667 A | USPAT | 19771206 | 3 | Cis-2-methyl-oct-5-en-2-yl acetate | | 560/261 |
| US 4059641 A | USPAT | 19771122 | 20 | Polyprenyl derivatives | 568/857 | |
| US 4055603 A | USPAT | 19771025 | 37 | Alkynyl terminating groups in biogenetic-like cyclizations to | | |
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